



Specifications

- Power requirement : Operated by one person by operating the handle forward and backward.
- Planting depth : 3 to 5 cm
- Number of rows : 4 (Two row model is also available)
- Row width : 24 cm
- Hill-to-hill spacing : 10-12 cm depending upon operator
- Number of seedlings/hill : 2 to 4
- Seed requirement : 40 kg (for transplanting one ha of land)
- Seedling size required : 20 to 25-days-old seedlings at 3 to 4 leaf stage
- Field capacity : 0.15 ha/day
- Cost of transplanting one hectare of land including cost of raising seedlings : Rs 1000



CRRI Technology Bulletin 15 (Revised)

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Published by the Director, for the Central Rice Research Institute
Cutlack (Orissa) 753 006.

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CRRI Rice Transplanter



Transplanting is the most popular method of growing rice in irrigated and favourable rainfed shallow lowlands. It reduces weeds and grazing by stray cattle in the beginning of the wet season. Farmers transplant rice seedlings in the well prepared puddled seedbed manually. The operation is a drudgery and back-breaking chore, labour intensive, and time consuming. The acute labour scarcity during the planting season results in delay in transplanting. Manual transplanting requires 60 man-days/ha. Thus, it is a cost intensive process too. The Central Rice Research Institute (CRRI), Cutlack, has designed and developed a 4-row manually operated rice transplanter to reduce the drudgery and the cost of operation. The transplanter saves 80% of the labour requirements and 74% of the cost of transplanting. It can be used for all rice varieties except hybrid rice. The transplanter can cover 0.03 hectare/hour using 20-25 days old mat type seedlings.

Raising Mat-type Seedlings

The CRRI rice transplanter requires 20 to 25-days-old-mat-type seedlings, which are raised in trays containing soil. A total of 75 trays comprising of 4 mats per tray are required for transplanting one hectare of land.

Preparation of Soil Mixture

- ❖ Add 80 g of the organic manure Steramil to each tray made available with the transplanter.

- ❖ Select soil which is free from extraneous materials like stone or wood pieces.
- ❖ Add this soil to the trays containing organic manure and mix well.
- ❖ Maintain the height of the soil mixture in the tray to 12 mm. Level it.

Selection of Seed

- ❖ Use clean paddy seeds obtained from reputed suppliers.
- ❖ Prepare salt solution of 1.06 specific gravity (dissolve 60 grams of common salt in one litre of water).
- ❖ Pour seed into the salt solution.
- ❖ Remove floating material, if any. Wash the seed in freshwater.

Seed Treatment and Seed Rate

- ❖ Treat the seed with Bavistin or Beam 75 or Hinosan or Thiram @ 2 g/kg seed.
- ❖ Mix Rootex @ 3 g/kg seed.
- ❖ Seed rate: 500 g/tray.
- ❖ About 40 kg seed is required to raise seedlings enough to transplant one ha of land.

Sowing of Seed

- ❖ Spread the treated seed in each tray evenly. Cover with 3-mm layer of soil mixture. Sprinkle water with a rose can on alternate days for 20 days as per need.

Land Preparation

- ❖ Plough the land two times. Puddle twice on two days for a fine puddle.
- ❖ Level the land with a leveller.
- ❖ Drain excess water.
- ❖ Apply basal fertilizer as per varietal recommendation before laddering.

Operating the Transplanter

- ❖ Check the components of the transplanter.

- ❖ Load the mats on the machine tray after sprinkling little water over the tray surface to facilitate easy sliding of mat.
- ❖ Lift the operating handle. Push it down gently to push the seedlings from the mat.
- ❖ Pull the machine backward after every transplanting stroke.

- ❖ Maintain a hill-to-hill spacing of 15 cm.
- ❖ Pull the machine in a straight line. If necessary, use a planting rope for first strip.
- ❖ If the finger in the machine does not pick the seedlings, give a second downward stroke at the same spot.
- ❖ Do manual gap filling if required, after a week of transplanting.
- ❖ When the transplanter reaches other end of the plot, run it in the opposite direction on an adjacent strip.
- ❖ If the machine tray does not move, adjust the pin of the oscillating mechanism fitted behind the tray.
- ❖ Reload the tray when seedling mat is exhausted.

Day-to-day Maintenance

- ❖ Wash the transplanter with water after each use.
- ❖ Dry the machine and store under shade.
- ❖ Apply grease in the mango cam and oil the moving parts.
- ❖ Tighten the nut and bolts properly before use.

Advantages

- ❖ Seedlings are raised in a small seed bed with less requirement of seeds, water and labour.
- ❖ Seedlings are healthy and uniform in appearance.
- ❖ Uprooting of seedlings is not required.
- ❖ Seedlings are protected from drought and stray animals.
- ❖ Expenditure on transplanting is considerably reduced.

Cost

- ❖ The transplanter costs Rs.5000.
- ❖ The cost of trays required to raise seedlings enough for one ha of land is Rs.6000. The trays however last up to ten years, if they repainted time to time.